



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/841,224	04/29/97	WEINBERG	M CSDL1-490XX

MM41/0928  
WEINGARTEN SCHURGIN GAGNEBIN & HAYES  
TEN POST OFFICE SQUARE  
BOSTON MA 02109

EXAMINER	
MOLLER, R	
ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 09/28/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

## Office Action Summary

Application No.	Applicant(s)
08/841,224	WEINBERG et al.
Examiner R. MOLLER	Group Art Unit 2856

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

### Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

### Status

- Responsive to communication(s) filed on \_\_\_\_\_.
- This action is FINAL.
- Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

### Disposition of Claims

- Claim(s) 1-20 is/are pending in the application.  
Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 Claim(s) 1-16 is/are allowed.  
 Claim(s) 17, 18, 20 is/are rejected.  
 Claim(s) 19 is/are objected to.  
 Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

### Application Papers

- See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.  
 The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.  
 The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.  
 The specification is objected to by the Examiner.  
 The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119 (a)-(d)

- Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- All  Some\*  None of the CERTIFIED copies of the priority documents have been received.
- received in Application No. (Series Code/Serial Number) \_\_\_\_\_.
- received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

### Attachment(s)

- Information Disclosure Statement(s), PTO-1449, Paper No(s). 4, 5  Interview Summary, PTO-413  
 Notice of References Cited, PTO-892  Notice of Informal Patent Application, PTO-152  
 Notice of Draftsperson's Patent Drawing Review, PTO-948  Other \_\_\_\_\_

## Office Action Summary

Art Unit: 2856

## **DETAILED ACTION**

### ***Specification***

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claim 6 and claim 20 mention the limitation that the trench is formed by a technique selected from the group consisting of reactive ion etching, chlorine etching, SF6 etching and anisotropic etching, which lack antecedent basis in the written description. Rather, the description only mentions that trench excavation in crystal silicon or glass can be done by well known techniques such as isotropic etching (Spec., pg. 9, para. 2).

### ***Claim Rejections - 35 U.S.C. § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by O'Brien et al., (US 5,392,650).

Re claim 17, '650 discloses a micro-machined accelerometer gyroscope, which teaches (Fig. 3, 4) the method of reducing undesirable effects of voltage transients on the gyro operation comprising: Interleaved comb electrodes comprising phase electrode 40 with fingers 40a

Art Unit: 2856

interleaved with the anti-phase electrode 42 with fingers 44a, whereby the gap between the accelerometer driver mass and the interleaved comb electrodes is increased by etching grooves 44a in the mass which reduces direct electrical interferences between the drive electrodes and the accelerometer signals ('650, col. 8, line 25 - col. 9, line 10).

Re claim 18, '650 also teaches in Figure 4, that the trenches 44a are formed on the driver mass below the interleaved comb electrodes 40 and 42.

***Claim Rejections - 35 U.S.C. § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over '650.

'650 discloses the claimed invention, as described above, except for the limitation of forming the trenches from the group consisting of reactive ion etching, chlorine etching, SF6 etching and anisotropic etching.

However, the specification teaches (Spec., pg. 9, para. 2) that trench excavation in crystal silicon or glass can be done by well known techniques such as isotropic etching.

Accordingly, it would have been obvious for one of ordinary skill in this art at the time the invention was made to manufacture the trenches 44a in 650's driver mass by using either of the

Art Unit: 2856

claimed techniques, such as reactive ion etching, chlorine etching, SF6 etching and anisotropic etching, as a matter of manufacturing design choice.

***Allowable Subject Matter***

6. Claims 1-16 are allowed.
7. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is an examiner's statement of reasons for allowance: The present invention is directed to an improved tuning fork gyroscope having a proof mass or vibrating member having interleaved comb electrodes attached to the proof mass of vibrating member, wherein a trench is formed under the interleaved comb electrodes which increases the gap between the surface of the substrate and the interleaved comb electrodes thereby reducing the effect of transient induced charges and reducing lift forces.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

9. The prior art made of record and not relied upon in the attached PTO Form 892 is considered pertinent to applicant's disclosure.

Art Unit: 2856

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Moller, whose telephone number is (703)-308-6715. The examiner can normally be reached on Monday-Thursday from 8:30 AM - 6:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams, can be reached on (703)-305-4705. The fax number for this Group is (703)-308-7382.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)-305-4900.



Richard A. Moller  
September 15, 1998